

## **REMARKS/ARGUMENTS**

Claims 1-9, 11-33, 35-46 and 73-81 are pending in this application. Claims 1-9, 11-13, 16-18, 21-33, 35-38, 43, 44, 73-75 and 77-81 are under examination and they are all rejected. The Examiner has withdrawn claims 14, 15, 19, 20, 39-42, 45, 46 and 76 from further consideration in this application as being drawn to a non-elected invention.

Reconsideration of the application is respectfully requested based on the evidence provided in the accompanying “Third Declaration Under 37 C.F.R. §1.132 of Dr. Ali Reza Haji Begli” which is being filed with this response. Claims 1 and 23 are amended herein to delete from the subject claims the recitation concerning the ratio between the amount of carbohydrates, or of the carbohydrate mixture, to be oxidized and the amount of gold present on the support being more than 1,000. This limitation is no longer believed necessary for distinguishing the claimed method over the cited art in light of the evidence presented in Dr. Haji Begli’s Third Declaration. This is particularly true in light of the fact that, as recited in the subject declaration (see, e.g., §4.1.1), in the experimental data provided therein “the ratio of carbohydrate or mixture of carbohydrate to gold was adjusted to 1,000 to be in conformity with the ratio used in the closest prior art of Biella.” Thus, as may be seen from the above, the ratio used is actually lower than that previously recited in claims 1 and 23 (i.e., a ratio of more than 1,000), which is the reason behind the present amendment of the claims.

No new matter is added by the claim amendments and, thus, their entry into the file of the present application is respectfully requested.

## **Examiner Interview**

Applicants wish to express their appreciation to the Examiner for her courtesy and assistance during a telephone interview conducted on December 21, 2010 with their attorney, Mark A. Farley (Reg. No. 33,170). As indicated in the Examiner’s Interview Summary dated January 3, 2011, the scope of the claims and the scope of the data (previously) submitted by the Applicants in response to the claim rejection(s) under 35 U.S.C. §103 was discussed and compared during the interview. The Examiner was of great assistance in outlining for the applicants the scope of comparative test data, i.e., supporting a range of pH, metal oxide supports and oligosaccharides which she stated she would favorably consider in regard to overcoming the subject claim rejection(s).

Applicants, thus, have undertaken a series of experimental trials along the lines outlined by the Examiner and the data obtained therein is provided in the Third Declaration Under 37 C.F.R. §1.132 of Dr. Ali Reza Haji Begli referred to above that is being filed with this response.

### **Claim Rejection Under 35 U.S.C. §103**

In the pending Action the Examiner continues to maintain the rejection of claims 1-9, 11-13, 16-18, 21-33, 35-38, 43-44, 73-75 and 77-81 under 35 U.S.C. §103 as being allegedly unpatentable over Biella et al. (*Journal of Catalysis*, 206, 242-247, 2002) in view of Fuentes et al. U.S. Patent No. 4,985,553 and Biella et al. (*Catalysis Today* 72 (2002) 43-49). The rejection is respectfully traversed;

A number of features that, in applicants' view at least, serve to distinguish the presently claimed method over the disclosure provided by the cited combination of references, in particular the unexpected improvement in durability offered with the use of the metal oxide supported gold catalysts recited in the claims for carrying out the claimed method, as evidenced by the substantially constant selectivity and activity demonstrated by the subject catalysts, are extensively discussed in applicants several responses filed in response to the various Office Actions previously issued in this case. Those prior remarks, together with the evidence of non-obviousness provided in the first and second declarations under 37 C.F.R. §1.132 of Dr. Ali Reza Haji Begli submitted, respectively, with the responses filed on June 25, 2009 and June 16, 2010, are expressly incorporated by reference into this response.

In the present Office Action, however, the Examiner states that the evidence presented in the previously-filed declarations of Dr. Haji Begli, while tending to show an improved result with the use of the presently claimed catalysts, is not commensurate in scope with the claims which the evidence is offered to support (see, e.g., the Examiner's Response to Arguments at pp. 5-7 of the Office Action).

Therefore, to clarify the scope of testing that the Examiner would favorably consider as evidence of a surprising an unexpected improvement capable of overcoming the finding of 'obviousness' under 35 U.S.C. §103, applicants' representative discussed these matters with the Examiner during the above-noted telephone interview on December 21, 2010. As set forth in the Examiner's Interview Summary (mailed January 3, 2011), the Examiner indicated that comparative testing supporting improved results for the presently claimed catalysts over a range

of pH, metal oxide supports and oligosaccharides would be favorably considered. This information was, thus, communicated to the Applicants who thus carried out the series of experiments detailed in the third declaration of Dr. Haji Begli provided with this response.

As explained in §4 of Dr. Haji Begli's third declaration, a series of experiments was carried out by him, or under his direction and control, to demonstrate the significantly greater durability offered with the use of the catalysts as taught and claimed in the present application versus those disclosed by the closest prior art (*Biella et al.*). In a first series glucose was oxidized with the use of a 1% Au/Al<sub>2</sub>O<sub>3</sub> catalyst at an adjusted pH of (i) pH 7; (ii) pH 8; or (iii) pH 9.5 over 10 consecutive batches for each group. The elapsed reaction time until the completion of the oxidation was chosen as the measure of the catalytic activity. [Note: the numerical values provided in the figures and in Table 1 are a measure, in minutes, of the reaction time].

In a second series of experiments glucose was oxidized by 1% Au catalyst on a variety of metal oxide supports, wherein the oxidation also was carried out at a variety of different pH's in 4 consecutive batches.

Further, in a third series of experiments several different carbohydrates were oxidized by a 1% Au catalyst on different metal oxide supports at different pH's in 4 consecutive batches.

As noted in §4.5 of the declaration, the results of the testing outlined above demonstrate that the activity of the catalysts as recited in applicants' claims is almost constant over repeated batches at a variety of different pHs. In contrast, the catalysts according to the cited art demonstrate a significant decrease in activity after only three or four batches. Additionally, the data presented further demonstrates the higher durability of the claimed catalysts in comparison to those described in the prior art during oxidation of a variety of different carbohydrates.

Applicants respectfully submit, therefore, that the substantial improvements demonstrated by the results of the experiments as set forth in the attached declaration under 37 C.F.R. §1.132 of Dr. Haji Begli clearly demonstrate to those having at least an ordinary level of skill in this field that the catalysts recited in the claims of this application, i.e., that are used in the claimed method for the selective oxidation of a carbohydrate, exhibit an unexpectedly significantly greater degree of durability than the catalysts disclosed for use in the cited prior art.

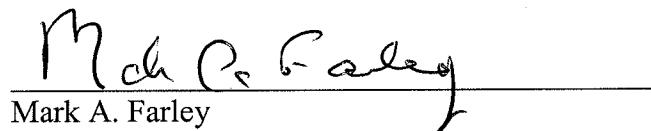
Based on the evidence provided in the subject declaration, taken in conjunction with the additional evidence reported in the first and second declarations under §1.132 of Dr. Haji Begli,

the Examiner is respectfully requested to reconsider and withdraw the §103 rejection of applicants' claims and to issue a Notice of Allowance for all of the claims presently under examination.

THIS CORRESPONDENCE IS BEING  
SUBMITTED ELECTRONICALLY  
THROUGH THE PATENT AND  
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Respectfully submitted,

  
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